Using a Checkbook Management System to Decrease the Inappropriate Speaking-Out Behaviors of a 14-Year-Old Special Education Student

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Abstract

The authors utilized Applied Behavior Analysis to examine the effects of using tokens with response cost (the Checkbook Management System) on decreasing the inappropriate speaking-out behaviors of a 14-year-old special education student. After functional behavior analysis indicated that the most likely function of the behavior was attention seeking, an intervention was designed to provide attention and tokens contingent upon the performance of the functional alternative behavior of hand-raising and waiting to be called on. Results showed a 67 % decrease in the mean target behavior from baseline to intervention conditions.

Introduction

The act of constantly blurting-out inappropriate comments during classroom instruction is a common behavior that can be very disruptive not only to the teacher and students, but to the educational process as a whole. Many teachers attempt to change these behaviors by punishing, threatening, blaming, and criticizing students, but these methods either do not work or work only on a short term basis (Brock, 1998). Often, when the punishments are removed, students will revert to their former inappropriate blurting out. Teachers are often unfamiliar with the methodology involved in creating and implementing successful interventions, and the need for the design of teacher friendly, effective, and enduring interventions to deal with disruptive classroom behavior is obvious (Kehle & Bray, 2000). One research proven intervention that is relatively easy to implement in a special education classroom is the token economy system with response cost.

The effectiveness of token economy systems is well documented. Token economies involve giving tokens to students for appropriate behaviors. Students collect the tokens and trade them in for items that they find reinforcing. Many researchers agree that the token economy system, if used correctly, is very effective for students who are resistant to other types of motivational or behavior management techniques (McIntyre, 2005). In some cases, however, reinforcement alone is not enough to modify a behavior. In those cases some form of punishment, most commonly a verbal reprimand, may be utilized. However, many researchers agree that although verbal reprimands are sufficient for some students, more

powerful consequences, such as response cost programs, are needed for others (Brock, 1998). Response cost allows the removal of previously awarded reinforcers as a penalty for inappropriate behavior (Utah State Office of Education).

At least one study (Oosterlaan & Sergeant, 1998) found no difference between the effects of reward and punishment on the behaviors of adolescents with AD/HD, however, that study had a small sample size. Conversely, many other studies suggest that response cost and other negative consequences are even more important and effective for changing the performance of children with attention deficit/hyperactivity disorder (AD/HD) than for changing the behaviors of other childern. (Abramowitz, O'Leary, & Rosen, 1987; Acker & O'Leary, 1987; Douglas, 1985, 1989; DuPaul, Anastopoulos, Shelton, Guevremont, & Metevia, 1992; Haenlein & Caul, 1987; Newman & Wallace, 1993; Pfiffner & O'Leary, 1987; Quay, 1988a, 1988b, 1997; Rapport, Murphy, & Baily, 1982; Rosen, O'Leary, Joyce, Conway, & Pfiffner, 1984; Wender, 1972). Combined, token economy and response cost have been shown to be quite effective in reducing noncompliant and disruptive behaviors (Musser, Kehle, Jensoiv, & Bray, 2001).

In the literature reviewed, numerous teachers and researchers indicated that desired behaviors increased and inappropriate behaviors decreased after a token economy system with response cost was applied (Brock, 1998; Cullinan & Cruz, 2001; Pelham & Fabiano, 2003; Musser, Kehle, Jensoiv, & Bray, 2001; Utah State Office of Education, 2005). Another reason that token systems are very successful and are widely implemented is because they are relatively easy-to-use interventions that effectively manage students' behavior and motivate learning. Unfortunately, studies show that although many teachers are familiar with behavior modification programs, many do not know how to implement them into their classrooms (Pelham & Fabiano, 2003). However, O'Leary and Drabman (1971) found that teachers using the token economy program with response cost do not need much training in behavioral principles in order to implement the programs successfully.

One example of a token economy system involving response cost is the checkbook behavior management program (Siegel, 1995). Studies have shown that money can be an effective motivator for behavioral change (Braksick, 2000; Daniels, 1989). In the checkbook management program, students have the opportunity to earn token "money" for appropriate behaviors. In addition, fines are implemented for inappropriate behaviors. With the teacher facilitating, students contribute to developing a list of appropriate and inappropriate behaviors that are tracked and rewarded or fined. Students also come to an agreement regarding how much "money" can be earned for appropriate behaviors, and how much of a fine they will pay for inappropriate behaviors. Lists of behaviors and associated costs are created and posted prominently in the classroom. Students are given checkbook registers to track their account balance by depositing any "earnings" and subtracting checks that they write to pay any penalties. At specified times, students have the opportunity to shop and spend their money on items they themselves have identified as rewarding. This strategy meets many of the requirements noted to be effective in producing behavioral change including: 1) individualized reinforcement, 2) clearly defined behaviors, 3) consequences contingent upon

the behavior, and 4) consequences applied as soon as possible (Bracksick, 2000; Daniels, 1989).

Method

The purpose of this study was to determine if a checkbook management system would decrease the inappropriate blurting-out behaviors exhibited by a 14-year-old male special education student. Blurting-out of inappropriate comments was defined as the shouting-out or speaking-out of comments that have nothing to do with the material being taught or task at hand during direct instruction or independent seat work. The dependent variable for the study was blurting-out inappropriate comments during class. The independent variable for the study was the token economy system with response cost (Checkbook Management System).

Subject and Setting

The subject is “Ken”, a 14 year 5-month-old African American boy with the classification of specific learning disability who was in an eighth-grade special education classroom. Although Attention Deficit Hyperactivity Disorder (ADHD) was suspected, Ken's mother indicated that she never had him tested for the condition, and he was therefore not medicated. Ken’s off-task and inappropriate blurting-out behaviors were extremely disruptive to the learning process within the class.

The investigation took place in a special education resource language arts classroom. The public junior high school followed a block schedule format for language arts, and these classes were longer in time than the typical class period. The classroom consisted of 4 girls and 7 boys, and instruction was provided by the special education teacher who was assisted by one paraprofessional. The students’ disabilities ranged from specific learning disabled to other health impairments, with one student identified as emotionally disturbed. Ken's teacher used a traditional classroom format which consisted of daily oral language, homework check, direct instruction, independent practice, sustained silent reading, and review. The teacher was prepared with materials and lessons daily.

Research Design

An AB teaching design was used to determine whether the use of positive attention and the checkbook system decreased Ken's blurting-out of inappropriate comments. This design was chosen for its simplicity, and ease of use. This design gave the teacher an immediate means of comparing Ken's "before" and "after" blurting-out behaviors.

Baseline

A scatter plot analysis was completed in the language arts classroom during direct instruction and independent seat work. Based on the data collected, it was determined that Ken’s inappropriate blurting-out behaviors were exhibited more frequently during the direct instruction portion of the class. On one occasion, the teacher was leading a class discussion on pronouns, and Ken yelled out, "Hey, did anyone see Survivor last night?" When the inappropriate behavior occurred, the teacher usually ignored the student, turned to look at him, or snapped her fingers at him. On the occasions when Ken exhibited the inappropriate behavior numerous times during the same class period, she

gave him lunch detention or punish work that consisted of copying definitions from the dictionary.

Due to the frequency of Ken's inappropriate blurting-out behaviors, and the fact that the behaviors were discrete, event recording was used to collect data. This method of data collection is also considered the most accurate method (Alberto & Troutman, 2006). An event recording data sheet was used to record the amount of times the target behavior was exhibited. Data was expressed in terms of rate because the length of time devoted to the class varied from day-to-day. Every time Ken would blurt-out an inappropriate comment, the researcher would record a tally mark on the data sheet. During baseline data collection, Ken exhibited the inappropriate blurting-out behavior an average rate of .37 per minute. The goal set for intervention was for Ken was to decrease his blurting out behaviors in language arts resource by 75% by the end of the study (or down to a rate of .0925 times per minute). In order to make this goal more attainable, the researcher broke the goal down into smaller objectives that he could achieve. The first objective was to decrease the target behavior by 25% to a rate of .28 times per minute. The second objective was to reduce the target behavior by 50% to a rate of .18 times per minute.

During baseline and throughout the study, an independent observer assisted in data collection 10 out of the 20 times that Ken was observed. Both observers used identical data collection procedures, and interobserver reliability was calculated at 85%. According to Alberto & Troutman (2006), “Applied behavior analysts aim for a reliability coefficient of around 90%. Anything less than 80% is a signal that something is seriously wrong” (p. 92). Interobserver reliability was calculated by dividing the smaller amount of tallies observed by the larger number of tallies observed, then multiplying by 100 to derive the percentage of agreement. Data collection procedures remained constant throughout the study both during baseline and throughout the investigation.

Intervention Plan

The only change from the baseline condition was the introduction of positive attention and the checkbook system. To determine the function of the behavior, a Functional Behavior Assessment involving both direct observation and indirect assessment was completed with the assistance of all of Ken’s teachers. The antecedents and consequences surrounding the behavior were recorded and analyzed. From the results, it was determined that Ken’s inappropriate behaviors occurred primarily in the classroom during the direct instruction portion of the class, and that he gained positive peer attention as a result of the behavior. Based on these results, it was hypothesized that the function of Ken’s behavior was to gain attention from his peers and teacher. Based on the hypothesized function, the intervention was designed to teach Ken the functional alternative behavior of raising his hand and waiting to be called on in order to receive both teacher and peer attention. Differential reinforcement of alternate behavior (DRA) was used by giving Ken attention only when he raised his hand and waited to be recognized before speaking out. In addition to recognition, the checkbook management system was chosen as an additional method of giving Ken attention and reinforcement when he was not blurting out.

The investigator chose to introduce the checkbook system to the entire class. Although the entire class participated in the intervention, data was only collected on the subject of the investigation. After five days of baseline that met the criteria for stability were collected, the teacher introduced the students to the intervention. She began with a whole class discussion about appropriate and inappropriate behaviors, then instructed the students on hand-raising rather than blurting-out during direct instruction and independent seat work. The teacher modeled the procedures for the students and then had them role-play the replacement behavior. Students were told that they would soon be participating in a new system that was intended to reward them for appropriate behaviors and have them pay a consequence for inappropriate behaviors. Students were also told that this new system simulated real-life and they would be writing checks and balancing checkbooks such as is done in real-life. Students were told that they would be taught how to write checks, maintain a ledger, and balance checkbooks prior to beginning the intervention.

Three days prior to beginning the intervention, the teacher held a mini-lesson on check writing. Students were given computer generated blank checks and copied the instructor as she modeled the correct way to complete a check. Students were then given purchasing scenarios and were given the opportunity to write checks independently. Students and teacher also worked together to come up with a list of behaviors that they felt were appropriate for "rewards" and to assign a "price" to each reward. The following day, the teacher held a mini-lesson on maintaining a ledger and balancing a checkbook. Again, purchasing scenarios were given and students were assisted in check writing, transferring amounts to a ledger, and adding or subtracting the amounts. Once this lesson was completed, the students and teacher worked together to create a list of behaviors that they felt were inappropriate, and assigned a "cost" to be used as a consequence to each of those behaviors.

On the day prior to beginning the intervention, the teacher and students again came together as a whole group and discussed the "store." The teacher and students decided that the store would be open on Fridays and the students submitted a list to the teacher of items that they would like to see in the store and price values of each item. Students were told that initially the costs and rewards could be used in the store at face value. Students were informed that the reward system would change to become more challenging as time went on to teach them more about the realities of life. For instance, at some point in time rent and sales tax would be charged, inflation would occur, and alternate rewards in the store as well as costs and reward dollars could be added or subtracted. Students were also told that audits would occur from time to time to ensure that ledgers were being maintained appropriately, and they would incur charges if the ledgers did not balance. Because of time constraints, data was only taken for a four week period, however, the intervention was kept in place after the study concluded.

On the day that the intervention began, the teacher handed folders containing the checkbooks and ledgers to students as they entered the class. Students were reminded that the intervention was in effect. The instructor maintained a tally form on a clipboard with

her at all times. The tally form contained the names of all the students in the class. The teacher marked appropriate and inappropriate behaviors during direct instruction and/or independent seat work. At the end of each day the teacher transferred the data for Ken from the class tally sheet to an event recording data sheet.

Fifteen minutes prior to the end of the class period, the teacher called each student one at a time to her desk to discuss his or her cumulative total for the day. Students were then asked to return to their desk to record their totals in the ledger. If students lost money due to infractions, they were asked to write checks to the teacher for that amount, noting the infraction on the check, and the teacher wrote checks to students who earned reinforcement. This was continued on a daily basis. During the third week of data collection, rent was added and occasional audits were made. The teacher randomly selected one ledger each day to be audited. Students whose ledgers did not balance were imposed a fine and sent back to their desks to correct the errors.

On Fridays, the teacher completed instruction earlier than usual in order to allow students time to visit "the store." The teacher posted the items available in the store and the price associated with each item. Students were then asked to decide what items they wanted to purchase, to write a check for the amount of purchase, and subtract the total from their ledgers. Each student was then given the opportunity, one at a time, to enter the store area, select an item, and pay the teacher for his or her purchase. Students were then given the remainder of the class period (10-15 minutes) to enjoy their purchases.

Results

Baseline data demonstrated that Ken's blurting-out of inappropriate behaviors were occurring at an average rate of .37 times per minute, ranging from a high of .50 times per minute to a low of .27 times per minute (Figure 1). The average rate of blurting-out inappropriate comments for the three week intervention period was .13 times per minute. During the first week of intervention, Ken's rate of blurting-out decreased to an average rate of .11 times per minute. Data collected during the second week of intervention showed that Ken's average rate of blurting-out inappropriate behaviors for that week were also .11 times per minute, and the average rate of blurting-out inappropriate comments during the third week of intervention was .17 times per minute.

On the first day of intervention, the rate of Kens behavior dropped from .43 times per minute on the last day of baseline to .14 times per minute, a percentage decrease of 67%. From session 6 to session 12, the trend was slightly down, but began climbing slightly from session 13 to session 20. There was only one crossover point, resulting in a percentage overlap of 6.7%.

Discussion

Although the investigation lasted only twenty sessions (five of which were for baseline data collection), or for a total of four weeks, the results were promising. The data

collected suggested that the intervention was effective (Figure 1). Ken did meet objective #1 and objective #2 (25% and 50% respectively). However, he did not meet the terminal goal of reducing his target behavior by 75%. Although Ken's teacher was very pleased with outcome of the investigation, she would have liked to have seen Ken achieve his goal of decreasing behaviors by 75%. In addition, as evidenced by the data illustrated in the graph, Ken's rate of blurting-out behavior appeared to slightly increase towards the end of the study. This may be due to the fact that Ken's finances fell into the negative range after "rent" was added in the third week because he was very prompt in spending any money that he earned. Therefore, it was not long before Ken had used all of his money and was no longer able to purchase items on Friday. The researcher believes that because the incentive to purchase items on Friday was no longer available for Ken, this was the reason that Ken's rate of blurting-out behaviors began to increase. One idea to avoid this situation in the future is to require students to place a certain percentage of their earnings into a "savings" account in lieu of allowing them to spend it all at one time. One other possibility is that the additional cost of "rent" may have been applied too quickly, and that more time in the intervention should be allowed before adding additional costs.

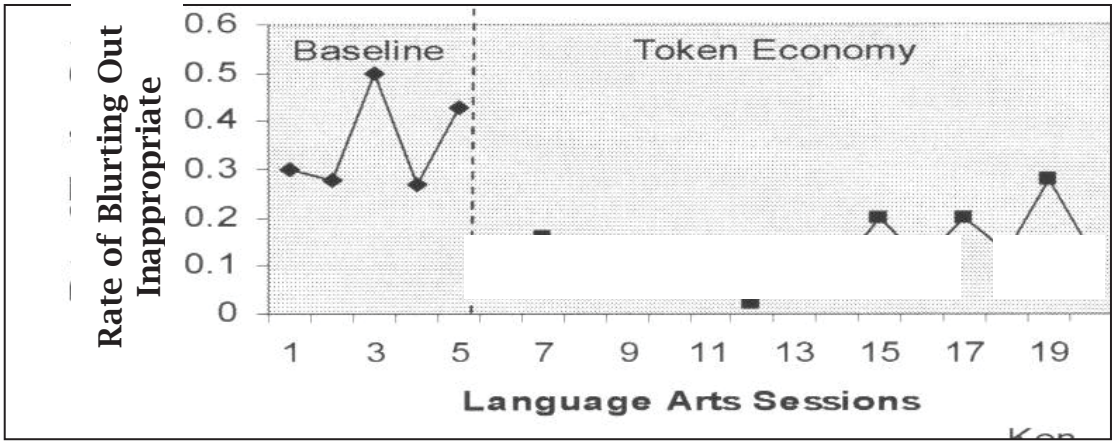
Limitations of the study include the fact that the AB design does not allow for the determination of a functional relationship because this research design does not provide for replication. In addition, due to time constraints data was only collected for a four-week period.

The results of this study imply that using positive attention along with a checkbook management program can successfully reduce the blurting out behaviors of a 14-year-old male special education student. Similar studies should be conducted to determine the value that this approach can have for modifying the behavior of students of various ages and developmental levels. These studies should include the collection of maintenance data so that a functional relationship may be established between the intervention and any change in behavior.

Table 1. Data Table of session dates and occurrences of target behavior.

Date	Session	Baseline	Rate of Occurrences
10/03/05	1	30	
10/04/05	2	28	
10/05/05	3	50	
10/06/05	4	.27	
10/07/05	5	43	
10/10/05	6		14
10/11/05	7		.16
10/12/05	8		07
10/13/05	9		06
10/14/05	10		.11
10/15/05	11		11
10/16/05	12		.02
10/17/05	13		13
10/21/05	14		09
10/22/05	15		20
10/25/05	16		11
10/26/05	17		20
10/27/05	18		13
10/28/05	19		28
10/29/05	20		.13

Figure 1: Graph of rate of blurting-out inappropriate comments



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